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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,628	10/08/2003	Hong Yeol Lee	5882P052	8432

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EXAMINER	
TAKAOKA, DEAN O	
ART UNIT	**PAPER NUMBER**
2817	

DATE MAILED: 02/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/682,628	LEE ET AL.	
	Examiner	Art Unit	
	Dean O. Takaoka	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,7,10 and 11* is/are rejected.

7)☒ Claim(s) *4,6,8 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/8/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed October 8, 2003 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the reference by Zhu, Min-Li et al. "Branched NRD Guide Directional Coupler" does not contain a date.

It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Claim Objections

1) Claim 1 is objected to because of the following informalities:

a) The "multiple-hole conductive" (line 8) should be multiple-hole conductive plate as recited in claims 4-8.

b) "said multiple-hole conductive plates" (line 12) should be multiple-hole conductive plate[s], see 1a.

Appropriate correction is required.

2) Claim 7 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 5. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is

proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 5 and 7 are identical and dependent from claim 3.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 5, 7, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato (Japan Patent No. 8-162813), further exemplified by Saitoh et al. (U.S. Patent No. 6,163,227) with respect to claim 3, Hiramatsu et al. (U.S. Patent No. 6,832,081) with respect to claim 10, and Shin (WO Patent No. 02/067368) with respect to claim 11.

Claim 1:

Sato shows a directional coupler using a non-radiative dielectric waveguide (0003) comprising upper (21) and lower (23) conductive plates (0010) opposite to and parallel to each other and a first NRD waveguide (24) and a second NRD waveguide (25) having a predetermined permittivity (i.e. Teflon - 0010) and a multiple-hole conductive (22) formed between the first and second NRD waveguides (Fig. 1) and having at least one through hole (26a or 26b – Figs. 1, 2b, 3 and 4) where the electric field or magnetic field component (shown by arrows) in the transmission mode of the

NRD waveguides is coupled through the through hole formed in the multiple-hole conductive plate (26a,b – Fig. 5).

Claim 3:

Where the first and second NRD waveguides are normal waveguides (inherent, where no grooves occur on the conductive plates; exemplified by Saitoh et al. where where Saitoh et al. shows prior art normal NRD waveguides with upper and lower non-grooved conductive plates Fig. 2, and hyper NRD waveguides with upper and lower grooved conductive plates Fig. 1 – col. 1, lines 24, 25).

Claims 5 and 7:

Where the upper and lower conductive plates and the multiple-hole conductive plate are parallel to each other.

Claim 10:

Where the signal transmitted through the NRD waveguide is a millimeter wave band (inherent where Sato teaches the NRD waveguide transmitting the LSM mode; exemplified by Hiramatsu et al. where Hiramatsu et al. teaches the LSM mode being a millimeter wave transmission mode of an NRD waveguide – col. 1, lines 36-38).

Claim 11:

Where the coupled amount of the directional coupler is 3db (Markush group; inherent as exemplified by Shin – abstract; where Figs. 6 and 7 of Sato are most nearly identical to Figs. 1-3 of Shin both comprising 180 degree bends of Teflon, further defining gaps between adjacent curved radii).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Saitoh et al. (U.S. Patent No. 6,163,227).

Sato teaches the directional coupler comprising normal NRD waveguides, discussed in the reasons for rejection of claim 1 above, but does not teach the NRD waveguides comprising hyper NRD waveguides.

Saitoh et al. shows prior art normal (Fig. 2) and hyper (Fig. 1) NRD waveguides.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the normal NRD waveguides disclosed by Sato with the hyper NRD waveguides disclosed by Saitoh et al. Such a modification would have realized the advantageous benefit of providing wider field energy distribution realizing better characteristics without dimensional precision (col. 2, lines 1-6, Saitoh et al.) thus suggesting the obviousness of the modification.

Allowable Subject Matter

Claims 4, 6, 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean O. Takaoka whose telephone number is (571) 272-1772. The examiner can normally be reached on 8:30a - 5:00p Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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January 26, 2005